CLAIMS

1. A method of forming an optical component, comprising:

obtaining a wafer having a light transmitting medium positioned over a base; and

applying an etching medium to the wafer so as to form one or more surfaces of an optical component in the light transmitting medium, the etching medium being applied in an etching chamber configured to etch wafers having at least one dimension with a length greater than 6 inches.

2. The method of claim 1, wherein the etching medium is applied in an etching chamber configured to etch a wafer having at least one dimension of at least 7 inches.

3. The method of claim 1, wherein the etching medium is applied in an etching chamber configured to etch a wafer having at least one dimension of at least 8 inches.

4. The method of claim 1, wherein the wafer has one or more dimensions with a length greater than 6 inches.

5. The method of claim 1, wherein the wafer has one or more dimensions with a length of at least 8 inches.

6. The method of claim 1, wherein at least a portion of the one or more surfaces are formed in less than 20 minutes.

7. The method of claim 1, wherein at least a portion of the one or more surfaces are formed in less than 10 minutes.

8. The method of claim 1, wherein the etching medium is applied so as to form at least a portion of the one or more surfaces at a rate of at least .1 μm/min.

9. The method of claim 8, wherein the portion of the one or more surfaces are formed with a smoothness of at most 25 nm.

10. The method of claim 1, wherein the etching medium is applied so as to form at least a portion of the one or more surfaces at a rate of at least .8 μm/min.

11. The method of claim 10, wherein the portion of the one or more surfaces are formed with a smoothness of at most 25 nm.

12. The method of claim 1, wherein the etching medium is applied so as to form at least a portion of the one or more surfaces at a rate of at least 1.5 μm/min.

13. The method of claim 1, wherein the one or more surfaces include a side of a waveguide.

14. The method of claim 1, wherein the one or more surfaces include sides of a ridge, the ridge defining at least a portion of a waveguide.

15. The method of claim 1, wherein the etching medium is applied continuously during formation of the one or more surfaces.

16. The method of claim 1, wherein applying the etching medium excludes applying the etching medium in consecutively repeated cycles.

17. The method of claim 1, wherein the one or more surfaces are formed to a height greater than 2 μm.

18. The method of claim 1, wherein the one or more surfaces are formed to a height of a least 4 μm.

19. The method of claim 1, wherein the one or more surfaces are formed to a height of at least 6 μm.

20. The method of claim 16, wherein the one or more surfaces are formed to a height greater than 2 μm.

21. The method of claim 16, wherein the one or more surfaces are formed to a height greater than 4 μm.

22. The method of claim 16, wherein the one or more surfaces are formed to a height greater than 2 μm.

23. The method of claim 16, wherein the one or more surfaces are formed to a height greater than 4 μm.

24. The method of claim 1, wherein the light transmitting medium is silicon.

25. The method of claim 1, wherein the etching medium includes an etchant and the etching medium is applied such that the etchant has a uniformity of 20% or less across the surface of the wafer.

26. The method of claim 1, wherein the etching medium includes an etchant and the etching medium is applied such that the etchant has a uniformity of 10% or less across the surface of the wafer.

27. A method of forming an optical component, comprising:

obtaining a wafer having a light transmitting medium positioned over a base, the wafer having one or more dimensions with a length greater than 6 inches; and

applying an etching medium to the wafer so as to form one or more surfaces in the light transmitting medium, the one or more surfaces including a surface of an optical component.

28. The method of claim 27, wherein the wafer has one or more dimensions with a length of at least 8 inches.

29. The method of claim 27, wherein the wafer has one or more dimensions with a length of at least 10 inches.

30. The method of claim 27, wherein the etching medium is applied in an etching chamber configured to etch a wafer having at least one dimension of at least seven inches.

31. The method of claim 27, wherein the etching medium is applied in an etching chamber configured to etch a wafer having at least one dimension of at least eight inches.

32. The method of claim 27, wherein the one or more surfaces include a side of a waveguide.

33. The method of claim 27, wherein the one or more surfaces include sides of a ridge, the ridge defining at least a portion of a waveguide.

34. The method of claim 27, wherein the etching medium is applied continuously during formation of the one or more surfaces.

35. The method of claim 27, wherein applying the etching medium excludes applying the etching medium in consecutively repeated cycles.

36. The method of claim 27, wherein the light transmitting medium is silicon.

37. The method of claim 27, wherein the etching medium includes an etchant and the etching medium is applied such that the etchant has a uniformity of 20% or less across the surface of the wafer.

38. The method of claim 27, wherein the etching medium includes an etchant and the etching medium is applied such that the etchant has a uniformity of 10% or less across the surface of the wafer.

39. A method of forming an optical component, comprising:

obtaining a wafer having a light transmitting medium positioned over a base; and

applying an etching medium to the light transmitting so as to form one or more surfaces of an optical component to a height greater than 2 μm, application of the etching medium excluding applying the etching medium in one or more repeated cycles during formation of the one or more surfaces.

40. The method of claim 39, wherein the one or more surfaces are formed to a height of at least 4 μm.

41. The method of claim 39, wherein the one or more surfaces are formed to a height of at least 6 μm.

42. The method of claim 39, wherein at least a portion of the one or more surfaces are formed in less than 20 minutes.

43. The method of claim 39, wherein at least a portion of the one or more surfaces are formed in less than 10 minutes.

44. The method of claim 39, wherein the etching medium is applied so as to form at least a portion of the one or more surfaces at a rate of at least .1 μm/min.

45. The method of claim 44, wherein the portion of the one or more surfaces are formed with a smoothness of at most 25 nm.

46. The method of claim 39, wherein the etching medium is applied so as to form at least a portion of the one or more surfaces at a rate of at least .8 μm/min.

47. The method of claim 46, wherein the portion of the one or more surfaces are formed with a smoothness of at most 25 nm.

48. The method of claim 39, wherein the etching medium is applied so as to form at least a portion of the one or more surfaces at a rate of at least 1.5 μm/min.

49. The method of claim 39, wherein the etching medium is applied in an etching chamber configured to etch a wafer having at least one dimension with a length greater than 6 inches.

50. The method of claim 39, wherein the etching medium is applied in an etching chamber configured to etch a wafer having at least one dimension of at least 7 inches.

51. The method of claim 39, wherein the etching medium is applied in an etching chamber configured to etch a wafer having at least one dimension of at least 8 inches.

52. The method of claim 39, wherein the wafer has one or more dimensions with a length greater than 6 inches.

53. The method of claim 39, wherein the wafer has one or more dimensions with a length of at least 8 inches.

54. The method of claim 39, wherein the light transmitting medium is silicon.

55. The method of claim 39, wherein the etching medium is applied continuously during formation of the one or more surfaces.

56. The method of claim 39, wherein the one or more surfaces include sides of a ridge, the ridge defining at least a portion of a waveguide.

57. A method of forming an optical component, comprising:

obtaining a wafer having a light transmitting medium positioned over a base; and

applying an etching medium to the light transmitting so as to form one or more surfaces of an optical component to a height greater than 2 μm, the etching medium being continuously applied during formation of the one or more surfaces.

58. The method of claim 57, wherein at least a portion of the one or more surfaces are formed in less than 20 minutes.

59. The method of claim 57, wherein at least a portion of the one or more surfaces are formed in less than 10 minutes.

60. The method of claim 57, wherein the etching medium is applied so as to form at least a portion of the one or more surfaces at a rate of at least .1 μm/min.

61. The method of claim 60, wherein the portion of the one or more surfaces are formed with a smoothness of at most 25 nm.

62. The method of claim 57, wherein the etching medium is applied so as to form at least a portion of the one or more surfaces at a rate of at least .8 μm/min.

63. The method of claim 62, wherein the portion of the one or more surfaces are formed with a smoothness of at most 25 nm.

64. The method of claim 57, wherein the etching medium is applied so as to form at least a portion of the one or more surfaces at a rate of at least 1.5 μm/min.

65. The method of claim 57, wherein the one or more surfaces are formed to a height greater than 2 μm.

66. The method of claim 57, wherein the one or more surfaces are formed to a height of at least 4 μm.

67. The method of claim 57, wherein the one or more surfaces are formed to a height of at least 6 μm.

68. The method of claim 57, wherein the etching medium is applied in an etching chamber configured to etch a wafer having at least one dimension with a length greater than 6 inches.

69. The method of claim 57, wherein the etching medium is applied in an etching chamber configured to etch a wafer having at least one dimension of at least 8 inches.

70. The method of claim 57, wherein the wafer has one or more dimensions with a length greater than 6 inches.

71. The method of claim 57, wherein the wafer has one or more dimensions with a length of at least 8 inches.

72. The method of claim 57, wherein the light transmitting medium is silicon.